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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,390	12/08/2003	Jeffrey D. Flammer	P03951	4528

28548 7590 03/07/2006

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EXAMINER	
NGUYEN, HUNG THANH	

ART UNIT	PAPER NUMBER
2841	

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

EV

Office Action Summary	Application No.	Applicant(s)	
	10/731,390	FLAMMER ET AL.	
	Examiner	Art Unit	
	HUNG T. NGUYEN	2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) *18-39* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17,40 and 41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-17, 40-41 drawn to rigid flex printed circuit, classified in class 174, subclass 254.

II. Claims 18-39, drawn to a process of fabricate, classified in class 361, subclass 749.

The inventions are distinct, each from the other because of the following reasons: Inventions II and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because rigid flex printed circuit board is capable of functioning without the need of the process of fabricating. The subcombination has separate utility such as process of manufacturing.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Erlick on 1/20/2006 a provisional election was made with traverse to prosecute the invention of group I, claims 1-

17, 40-41. Affirmation of this election must be made by applicant in replying to this Office action. Claims 18-39 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 4-5, 8, 10-13, 40-41 are rejected under 35 U.S.C. 102(e) as being anticipated by Caron et al. (US 6,350,387).

Regard claim 1, 13: Caron et al. discloses in figures 1-3, rigid-flex printed circuit board combination: system comprising, least one rigid layer (rigid on left, rigid on right sides); at least one flexible layer (14) bonded to at least one portion of said at least one rigid layer (rigid on left, rigid on right sides); wherein said at least one rigid layer (rigid on left, rigid on right sides) comprises at least one structural weakness (weakness structural is located at element 14) at at least one selected location; wherein said at least one structural weakness (weakness structural is located at element 14) is adapted to facilitate breaking said at least one rigid layer (rigid on left, rigid on right sides) at such at least one selected location into

at least two pieces to provide a flexible connection formed by said at least one flexible layer between such pieces.

Regard claim 2: Caron et al. discloses in figures 1-3, the rigid-flex printed circuit board system wherein such structural weakness comprises at least one score (24).

Regard claim 4: Caron et al. discloses in figure 1, the rigid-flex printed circuit board wherein said structural weakness comprises at least one gap (the gap shows at region 24) at such selected location between said at least one rigid layer and said at least one flexible layer.

Regard claim 5: Caron et al. discloses the rigid-flex printed circuit board system further comprising: at least one adhesive (see columns 1-4) to bond at least one portion of said at least one flexible layer to at least one portion of said at least one rigid layer; wherein said structural weakness comprises selective absence of adhesive at such selected location between said at least one rigid layer and said at least one flexible layer.

Regard claim 8, 10, 11: Caron et al. discloses the rigid-flex printed circuit board system wherein said at least one rigid layer comprises epoxy, fiberglass, polyimide (see column 1, lines 21-67).

Regard claim 12: Caron et al. discloses the rigid-flex printed circuit board system wherein said at least one flexible layer comprises at least one substantially flexible insulating layer (40), and at least one substantially flexible conductive layer (42, 44); and said at least one rigid layer comprises at least one substantially rigid insulating layer (50), and at least one conductive layer.

Regard claim 40: Caron et al. discloses in figures 1-3, a rigid-flex printed circuit board combination: system comprising, insulating means (separate layer) for conductive portions circuit board; electrically insulating of the rigid-flex printed conducting means (allow current to follow to rigid flex) for conducting electricity through portions of the rigid-flex printed circuit board; rigidity means (stability of circuit body) for providing rigidity to portions of said conducting means; conversion means (portion of rigid and flex) for converting portions of rigidity means into a flexible means for flexing portions of said conductor means.

Regard claim 41: Caron et al. discloses the rigid-flex printed circuit board system wherein said conversion means (explain in claim 41) comprises structural weakness means (weakness structural is located at element 14) for structurally weakening selected portions of said rigidity means.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3, 6-7, 9, 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caron et al. (US 6,350,387) in view of Warner et al. (US 6,665,170).

Regard claim 3: Caron et al. discloses in figures 1-3, the rigid-flex printed circuit board system according to wherein: said at least one rigid layer comprises at least one top side (region at element 52, top), and at least one bottom side (region at element 52, bottom).

Caron does not disclose the structural weakness comprises at least one score on said at least one top side at such at least one selected location, and at least one score on said at least one bottom side such at least one selected location.

Warner et al. discloses in figure 2, the structural weakness comprises at least one score (22, top) on said at least one top side at such at least one selected location, and at least one score (22, bottom) on said at least one bottom side such at least one selected location.

Caron and Warner et al. are analogous art because they are from the same field of endeavor to make circuit board.

Therefore, it would have been obvious for one ordinary skill in the art at the time of the invention to make score of Caron et al. to have score at top and bottom for the benefit of easy breaking.

Regard claim 6, 7, 16, 17: Caron et al. discloses all elements of the rigid flex printed circuit board as described above with respect to claim 1 except, Caron et al. does not disclose the rigid-flex printed circuit board system wherein said structural weakness comprises at least one laser and one mechanical score.

However, it is old and well known for one ordinary skill in the art to make laser/mechanical scores in many applications today because it is easy to break.

Therefore, it would have been obvious for one ordinary skill in the art at the time of the invention to make laser/mechanical score for the benefit of break.

Regard claim 9, 14, 15: Caron et al. discloses all elements of the rigid flex printed circuit board with respect to claim 1 except, Caron et al. does not disclose the rigid-flex printed circuit board system wherein said at least one rigid layer comprises metal, aluminum.

However, it is old and well known for one ordinary skill in the art to use different type of materials for layer for the benefit of meeting the costs and conductivity.

Therefore, it would have been obvious for one ordinary skill in the art at the time of the invention to use different type of material for layer for the benefit of meeting the costs and conductivity.

Relevant Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Haas (US 5,121,297) teaches rigid and flex circuits, Hoyt (US 4,173,035) teaches flexible lighting strip, Smith (US 6,762,942) teaches flexible circuit connected by two substrate, Mckenney et al. (US 6,099,745) teaches rigid and flex circuit board, Sato (US 4,680,675) teaches printed circuit board terminal device, Isaacson (US 3,766,439) teaches flexible circuit board.

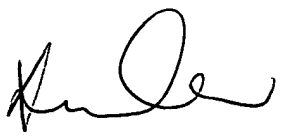
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG T. NGUYEN whose telephone number is 571-272-5983. The examiner can normally be reached on 8:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, KAMMIE CUNEO can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

HN

Hung Thanh Nguyen 1/30/06



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